

## **Remarks**

### **I. Status of claims**

Claims 1-64 were pending.

Claim 30 has been rewritten in independent form. Claim 30 has the same scope that is had in its originally filed dependent form.

Claims 7 and 38 have been canceled without prejudice.

Dependent claim 65 has been added.

### **II. Claim rejections under 35 U.S.C. § 101**

The Examiner has rejected claims 32 and 64 under 35 U.S.C. § 101. The Examiner has explained the sole basis for rejecting these claims under 35 U.S.C. § 101 as follows:

Claims 32 and 64 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The preamble of the claims states "a machine readable medium storing machine-readable instructions ... " Under the current guidelines used by the USPTO a machine readable medium is considered nonstatutory. A computer-readable medium storing computer-readable instructions is currently considered statutory.

The Interim Guidelines, however, merely describes a computer-readable medium storing functional descriptive material as one example of statutory subject matter under 35 U.S.C. § 101 (see page 50 of the Interim Guidelines). There is no reasonable basis under 35 U.S.C. § 101 for the Examiner to treat a claim directed to a machine-readable medium storing functional descriptive material any differently than a claim directed to a computer-readable medium storing the same functional descriptive material. Neither 35 U.S.C. § 101 nor the Interim Guidelines gives the words "computer-readable medium" the talismanic significance attributed by the Examiner.

For at least these reasons, the rejection of claims 32 and 64 under 35 U.S.C. § 101 should be withdrawn.

Neither claim 32 nor claim 64 has been rejected under any basis other than 35 U.S.C. § 101. Accordingly, these claims now are in condition for allowance.

III. Claim rejections under 35 U.S.C. § 102

A. Rejection of claims 1, 2, 4-12, 14, 15, 19, 20, and 22-31 over Pryor

The Examiner has rejected claims 1, 2, 4-12, 14, 15, 19, 20, and 22-31 under 35 U.S.C. § 102(e) over Pryor (U.S. 7,042,440).

1. Independent claim 1

Independent claim 1 has been amended and now recites:

1. A method of interfacing with a machine, comprising:
  - at each of multiple capture times, contemporaneously acquiring a respective image from each of multiple fields of view defining an interactive space to create a respective set of contemporaneous images;
  - detecting an input target in the acquired images;
  - computing two-dimensional coordinates of the input target detected in the acquired images;
  - constructing a spatiotemporal input data structure linking each of the capture times to the computed two-dimensional coordinates of the input target in each of the contemporaneously acquired images in a respective one of the sets of contemporaneous images;
  - processing the spatiotemporal input data structure to identify an input instruction; and
  - executing the identified input instruction on the machine.

In support of the rejection of claim 1, the Examiner has stated that:

Regarding claims 1 and 31, the claims are drawn to a method of operation and associated input device, Pryor discloses a computer input system that acquires images of an interactive space from multiple fields of view and then detecting an input target in the acquired images (Fig. 7, element Step 1) and then computes the coordinates of the detected target (Fig. 7, element Step 4). Pryor then calculates patterns of location, orientation and timing of the movement of the input target (Fig. 7, elements 7A), processes the information to determine if the calculated movement equals a target path to determine the movement to determine a command (Fig. 7, elements Step 7C

and 8) and then executes the input instruction based on the gesture made by the input target (col. 43, lines 43-63).

Pyror, however, neither expressly nor inherently discloses “at each of multiple capture times, contemporaneously acquiring a respective image from each of multiple fields of view defining an interactive space to create a respective set of contemporaneous images” and “constructing a spatiotemporal input data structure linking each of the capture times to the computed two-dimensional coordinates of the input target in each of the contemporaneously acquired images in a respective one of the sets of contemporaneous images,” as now recited in claim 1.

In the cited section of Pryor's disclosure, Pryor discloses that the three-dimensional coordinates (X,Y,Z) and the orientation angles (A1,A2,A3) of a target are determined using photographic or lookup table pattern matching techniques (see FIG. 7, steps 4 and 5) and that this information used to define target paths (see FIG., step 7A, and col. 30, lines 53-59). The stored path data, however, does not link each of multiple capture times to the computed two-dimensional coordinates of an input target in each of the contemporaneously acquired images in a respective contemporaneous image set created by contemporaneously acquiring a respective image from each of multiple fields of view defining an interactive space, as recited in claim 1. Instead, the stored path data merely stores three-dimensional location information, three orientation angles, and time (see, e.g., col. 17, lines 34-40).

For at least these reasons, the rejection of claim 1 under 35 U.S.C. § 102(e) over Pryor now should be withdrawn.

2. Dependent claims 2, 4-12, 14, 15, 19, 20, and 22-29

Each of claims 2, 4-12, 14, 15, 19, 20, and 22-30 incorporates the features of independent claim 1 and therefore is patentable over Pryor for at least the same reasons explained above.

3. Independent claim 30

Claim 30 has been rewritten in independent form.

Claim 30 recites in part “further comprising interpolating between fields of view to generate a synthetic view of the interactive space.”

In support of the rejection of claim 30, the Examiner has stated that:

Regarding claim 30, Pryor discloses calculating input coordinates based on a pair of input cameras (Fig. 1c, elements 60 and 61). The actual position is determined by interpolating based on the input images to generate a view of the object within the interactive space.

Contrary to the Examiner's statement, however, the process of calculating input coordinates in accordance with Pryor's teachings does not involve interpolating based on the input images to generate a view of the object within the interactive space. Instead, Pryor teaches that the input coordinates are calculated for each target by matching the images from the stereo cameras 60, 61 and solving the photogrammetric equations, which give the three-dimensional coordinates of the target (see, e.g., col. 9, line 15 - col. 10, line 46; also see FIG. 7, steps 4 and 5).

Moreover, claim 30 does not recite "interpolating based on the input images to generate a view of the object within the interactive space," as assumed by the Examiner. Instead, claim 30 recites "interpolating between fields of view to generate a synthetic view of the interactive space." Pryor does not teach or suggest anything about "interpolating between fields of view to generate a synthetic view of the interactive space." In accordance with Pryor's teachings, the images from the stereo cameras 60, 61 are used only to compute the three-dimensional coordinates (X,Y,Z) and the orientation angles (A1,A2,A3) of a target (see, e.g., FIG. 7, steps 4 and 5).

For at least these reasons, the Examiner's rejection of independent claim 30 under 35 U.S.C. § 103(a) over Pryor should be withdrawn.

#### 4. Independent claim 31

Independent claim 31 recites features that essentially track the pertinent features of independent claim 1 discussed above. Therefore, independent claim 31 is patentable over Pryor for at least the same reasons explained above in connection with independent claim 1.

#### B. Rejection of claims 33, 34, 37, 39, 40, and 63 over Pulli

The Examiner has rejected claims 33, 34, 37, 39, 40, and 63 under 35 U.S.C. § 102(e) over Pulli (U.S. 6,771,294).

1. Independent claim 33

Independent claim 1 has been amended to incorporate the elements of claim 38 and now recites:

33. A method of interfacing with a machine, comprising:
- displaying an image at a display location disposed between a viewing space and an interactive space, wherein the displayed image is viewable from a perspective in the viewing space;
  - acquiring images of the interactive space from a field of view directed toward the interactive space along an optical axis intersecting a central area of the display location;
  - detecting an input target in the acquired images;
  - computing coordinates of the input target detected in the acquired images;
  - identifying an input instruction based on the computed input coordinates; and
  - executing the identified input instruction on the machine.

The Examiner has acknowledged that Pulli does not disclose “acquiring images of the interactive space from a field of view directed toward the interactive space along an optical axis intersecting a central area of the display location” (see page 10, lines 4 et seq). For at least this reason, the rejection of claim 33 under 35 U.S.C. § 102(e) over Pulli now should be withdrawn.

With respect to the rejection of claim 38 under 35 U.S.C. § 103(a) over Pulli, the Examiner has stated that (emphasis added):

Regarding claim 38, the Examiner takes Official Notice that it is well known in the art that a wearable computer system with display glasses and a camera integrated with the glasses can position the glasses in the middle of the field of view where it would intersect the central area of the display location. The position of the input cameras may be over the eyes, along the outsides of the frames or in a central position between the frames along the central optical axis. One skilled in the art would be motivated to position the input cameras in such a manner as to detect desired information for use with the input system whether the camera would be centrally located or located at other positions away from the displays.

Positioning Pulli's display glasses "in the middle of the field of view where it would intersect the central area of the display location," however, would not cause Pulli's device to acquire "images of the interactive space from a field of view directed toward the interactive space along an optical axis intersecting a central area of the display location," as now recited in claim 33. In accordance with Pulli's teachings, the images are displayed in the reflector surfaces 1022, 1024 of the augmented reality glasses 102 (see col. 4, lines 46-65). The positions of the reflector surfaces 1022, 1024 are fixed in relation to the cameras 100A and 100B. Consequently, moving the augmented reality glasses 102, as proposed by the Examiner, would not have any effect on the field of view of the cameras 100A, 100B in relation to the display locations in the in the reflector surfaces 1022, 1024.

In addition, the Examiner's rationale in support of his rejection of claim 38 amounts to no more than the impermissible "obvious to try" rationale, which is not the proper standard under 35 U.S.C. § 103 (see MPEP § 2145.X.B). There mere fact that it is theoretically possible to position the input cameras "over the eyes, along the outsides of the frames or in a central position between the frames along the central optical axis" (emphasis added), does not meet the Examiner's obligation to point to some teaching or suggestion in Pulli or the knowledge generally available that would have led one of ordinary skill in the art at the time the invention was made to modify Pulli's disclosure in the manner proposed by the Examiner (see MPEP § 706.02(j)). The Examiner's proposed motivation for modifying Pulli's teachings (i.e., "... to detect desired information ...") would not have led one skilled in the art to position either of the cameras 100A, 100B to a central location of one of the display reflector surfaces 1022, 1024. Indeed, the Examiner's proffered motivation (i.e., "... to detect desired information ...") does not provide any guidance whatsoever as to where the cameras 100A, 100B should be placed in relation to the display reflector surfaces 1022, 1024. The fact is that neither Pulli nor the knowledge generally available at the time the invention was made would have led one skilled in the art to believe that there was any problem to be solved or any advantage that would be gained by such a modification of Pulli's disclosure.

Without any apparent reason for modifying Pulli's disclosure, the Examiner's rationale in support of the rejection of claim 38 amounts to no more than a conclusory obvious to try rationale which cannot support a rejection under 35 U.S.C. § 103. See KSR Int'l Co. v. Teleflex Inc., No. 04-1350, slip op. at 14 (U.S. Apr. 30, 2007) (citing In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006): "[R]ejections on obviousness grounds cannot be

sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

Claim 33 is patentable over Pulli for at least the additional reasons explained above in connection with the rejection of claim 38.

2. Claims 34, 37, 39, and 40

Each of claims 34, 37, 39, and 40 incorporates the features of independent claim 33 and therefore is patentable over Pulli for at least the same reasons explained above.

3. Independent claim 63

Independent claim 63 recites features that essentially track the pertinent features of independent claim 33 discussed above. Therefore, independent claim 63 is patentable over Pryor for at least the same reasons explained above in connection with independent claim 33.

C. Rejection of claims 33 and 35 over Kurtenbach

The Examiner has rejected claims 33 and 35 under 35 U.S.C. § 102(e) over Kurtenbach (U.S. 2003/014067).

Kurtenbach does not disclose “acquiring images of the interactive space from a field of view directed toward the interactive space along an optical axis intersecting a central area of the display location,” as now recited in independent claim 33.

For at least this reason, the rejection of independent claim 33 under 35 U.S.C. § 102(e) over Kurtenbach now should be withdrawn.

Claim 35 incorporates the features of independent claim 33 and therefore is patentable over Kurtenbach for at least the same reasons.

IV. Claim rejections under 35 U.S.C. § 103

A. Claim 13

The Examiner has rejected claim 13 under 35 U.S.C. § 103(a) over Pryor (U.S. 7,042,440).

Claim 13 depends from independent claim 1 and therefore is patentable over Pryor for at least the same reasons explained above in connection with independent claim 1.

B. Claim 3

The Examiner has rejected claim 3 under 35 U.S.C. § 103(a) over Pryor in view of Kumar (U.S. 6,204,852).

Claim 3 depends from independent claim 1. Kumar does not make-up for the failure of Pryor to teach or suggest the elements of claim 1 discussed above. Therefore, claim 3 is patentable over Pryor and Kumra for at least the same reasons explained above in connection with independent claim 1.

C. Claims 16-18

The Examiner has rejected claims 16-18 under 35 U.S.C. § 103(a) over Pryor in view of Schmalstieg (U.S. 6,842,175).

Each of claims 16-18 depends from independent claim 1. Schmalstieg does not make-up for the failure of Pryor to teach or suggest the elements of claim 1 discussed above. Therefore, claims 16-18 are patentable over Pryor and Schmalstieg for at least the same reasons explained above in connection with independent claim 1.

D. Claims 36 and 38

The Examiner has rejected claims 36 and 38 under 35 U.S.C. § 103(a) over Pulli (U.S. 6,771,294).

Claim 36 depends from independent claim 33 and therefore is patentable over Pulli for at least the same reasons explained above in connection with independent claim 33.

Claim 38 has been canceled without prejudice.

E. Claims 41-48, 52-60, and 62

The Examiner has rejected claims 41-48, 52-60, and 62 under 35 U.S.C. § 103(a) over Pulli (U.S. 6,771,294) in view of Pryor (U.S. 7,042,440).

Each of claims 41-48, 52-60, and 62 depends from independent claim 33. Pryor does not make-up for the failure of Pulli to teach or suggest the elements of claim 33 discussed above. Therefore, claims 41-48, 52-60, and 62 are patentable over Pulli and Pryor for at least the same reasons explained above in connection with independent claim 33.



F. Claims 49-51 and 54

The Examiner has rejected claims 49-51 and 54 under 35 U.S.C. § 103(a) over Pulli (U.S. U.S. 6,771,294) in view of Pryor (U.S. 7,042,440) and Schmalstieg (U.S. 6,842,175).

Each of claims 49-51 and 54 depends from independent claim 33. Neither Pryor nor Schmalstieg makes-up for the failure of Pulli to teach or suggest the elements of claim 33 discussed above. Therefore, claims 49-51 and 54 are patentable over Pulli, Pryor, and Schmalstieg for at least the same reasons explained above in connection with independent claim 33.

V. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,



Date: June 21, 2007

Edouard Garcia  
Reg. No. 38,461  
Telephone No.: (650) 289-0904

Please direct all correspondence to:

Hewlett-Packard Company  
Intellectual Property Administration  
Legal Department, M/S 35  
P.O. Box 272400  
Fort Collins, CO 80528-9599